

Roll No.

BCA-301(N)

B. C. A. (Third Semester) EXAMINATION, Dec., 2017

(New Course)

Paper First

OBJECT ORIENTED PROGRAMMING USING C++

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

3 each

(Short Answer Type Questions)

Note : Attempt all questions.

1. (A) Differentiate between pointer and reference variable.
- (B) What is the difference between public and protected inheritance ?
- (C) How does C++ compiler handle dynamic binding ?
- (D) Define reusability ? How does C++ support reusability.

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- (E) How are constructor and destructor executed in multilevel inheritance ?
- (F) What is the role of new operator in C++ ?
- (G) How is garbage collection done in C++ ?
- (H) Write the output of the following C++ program code :

Assume all required header files are already being included in the program.

```
void position (int & C1 int C2 = 3)
```

```
{    C1 += 2;
```

```
    C2 += y;
```

```
}
```

```
void main ( )
```

```
{    in P1 = 20, P2 = 4;
```

```
    position (P1);
```

```
    cout << P1 << " , " << P2 << endl;
```

```
    position (P2, P1);
```

```
    cout << P1 << " , " << P2 << endl;
```

```
}
```

- (I) Write the output of the following C++ program code :

Assume all required header files are already being included in the program.

```
class calc
```

```
{
```

```
    char Grade;
```

```
    int Bonus;
```

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```
public :
```

```
    calc ( ) {Grade = 'E' : Bonus = 0;}
```

```
    void Down (int G)
```

```
{
```

```
        Grade -- = G;
```

```
}
```

```
    void Up (int G)
```

```
{
```

```
        Grade + = G
```

```
        Bonus ++;
```

```
}
```

```
    void show ( )
```

```
{
```

```
        cout << Grade << "#" << Bonus << endl;
```

```
}
```

```
};
```

```
void main ( )
```

```
{    Calc C;
```

```
    C. Down (2);
```

```
    C. Show ( );
```

```
    C. Up (7);
```

```
    C. Show ( );
```

```
    C. Down (2);
```

```
    C. Show ( );
```

```
}
```

Section—B

(Long Answer Type Questions)

Note : Attempt any *two* questions.

2. (i) Differentiate between the following : 2
 - (a) `f = open ('diary .txt', 'r')`
 - (b) `f = open ('diary .txt', 'w')`
- (ii) Give an example to show how to use object as the arguments in a function. 10
3. (i) Explain how arguments are passed by a program to a function. 6
- (ii) Create a class named shape. Using shape class write a program to develop square and rectangle as the output. 6
4. (i) What is the role of inline function ? How does it differ from macros ? 6
- (ii) What is meant by constant member function ? Explain with example. 6
5. (i) Which operators cannot be overloaded. 2
- (ii) Write a program to overload ++ operator for prefix and postfix use. 10

Section—C

(Long Answer Type Questions)

Note : Attempt any *two* questions.

6. What is polymorphism ? What are the different types of polymorphism ? Explain in detail, what are the merits and demerits ? 12
7. (i) What do you mean by Data Abstraction ? 6
- (ii) Explain how exception handling is done in C++.6

8. (i) Explain typecasting. What are explicit and implicit type conversion ? 6
- (ii) What do you mean by generic class ? Give an example. 6
9. (i) What is the difference between a virtual function and pure virtual function ? Explain with example. 6
- (ii) Write a function template to find a maximum value from an array. 6